Coping Practices Related to Algorithmic Selection in Switzerland

Latzer, Michael ; Festic, Noemi ; Kappeler, Kiran

Other titles: Report 4 from the Project: The Significance of Algorithmic Selection for Everyday Life: The Case of Switzerland.

University of Zurich[UZH]

IKMZ – Department of Communication and Media Research

Research Report – Media Change & Innovation Division

Coping Practices Related to Algorithmic Selection in Switzerland

Report 4 from the Project: The Significance of Algorithmic Selection for Everyday Life: The Case of Switzerland

Michael Latzer (Project Lead)
Noemi Festic
Kiran Kappeler

MEDIA CHANGE and innovation a division of ikmz

FNSNF
Swiss National Science Foundation

Imprint

PUBLISHER

University of Zurich
IKMZ – Department of Communication and Media Research
Media Change & Innovation Division
Andreasstrasse 15
8050 Zurich
http://mediachange.ch

PROJECT LEAD

Prof. Dr. Michael Latzer (m.latzer@ikmz.uzh.ch)

PROJECT TEAM

Noemi Festic, M.A. (n.festic@ikmz.uzh.ch)
Kiran Kappeler, M.A. (k.kappeler@ikmz.uzh.ch)

With assistance from Eliza Mitova and Merve Yildirim.

PLEASE QUOTE AS

Latzer, M., Festic, N., & Kappeler, K. (2020). Coping Practices Related to Algorithmic Selection in Switzerland. Report 4 from the Project: The Significance of Algorithmic Selection for Everyday Life: The Case of Switzerland. Zurich: University of Zurich. http://mediachange.ch/research/algosig

Zurich, March 2020

This project was supported by the Swiss National Science Foundation (SNF).

Contents

List of Figures

General Introduction to the Project

Algorithms on the internet govern our lives and our realities (Just & Latzer, 2017). They change our perception of the world and affect our behavior by influencing our choices. Consider the selection of online information via search engines, of music and video entertainment content via recommender systems, of products in online shops, or of status messages displayed on social online networks. With their governing power, algorithms on the internet have become an important source and factor of social order in digitized societies (Latzer & Just, 2020).

Governance *by* and governance *of* algorithms

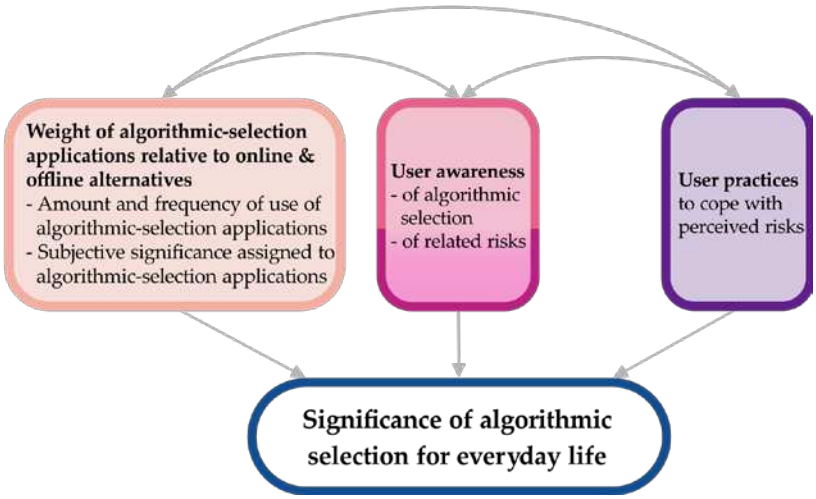
The benefits of this governance *by* algorithms in everyday life are accompanied by potential risks like manipulation, bias, discrimination or threats to privacy, which call for an adequate governance *of* algorithms (Latzer et al., 2016; Saurwein, Just & Latzer, 2015).

Empirical project on the significance of algorithmic selection for everyday life

The project "The Significance of Algorithmic Selection for Everyday Life: The Case of Switzerland" empirically explores the significance of internet-based applications that build on automated *algorithmic* selection, essentially defined as the assignment of relevance to selected pieces of information. It provides empirical evidence for assessing the possible risks and the societal groups that may be particularly affected by them. It thereby provides the basis for a more evidence-based governance of algorithms.

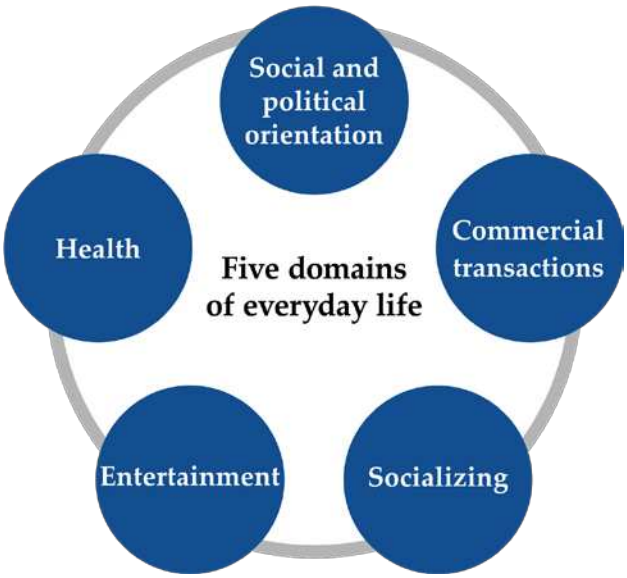
The project is based on a representative survey of Swiss internet users conducted between December 2018 and January 2019. It is conceptually grounded in a measurement model for the significance of algorithmic selection for everyday life based on five variables (Latzer & Festic, 2019): usage of algorithmic-selection applications, the subjective significance assigned to them, awareness of algorithmic selection, awareness of associated risks, and practices to cope with these risks (see Figure 1).

Figure 1: Measurement model for the significance of algorithmic selection for everyday life



Algorithmic-selection applications serve a variety of purposes in everyday life. To reflect these diverse ways of how daily activities are influenced by algorithmic-selection applications, this project evaluates their significance in five life domains: social and political orientation, commercial transactions, socializing, entertainment, and health (see Figure 2).

Figure 2: Five domains of everyday life



In accordance with the measurement model for the significance of algorithmic selection for everyday life, four thematic reports summarize the main results of the survey (see Figure 3):

Figure 3: Four reports on the significance of algorithmic selection for everyday life

I) Use and Assigned Relevance of Algorithmic-Selection Applications in Switzerland.

II) Awareness of Algorithmic Selection and Attitudes in Switzerland.

III) Awareness of Risks Related to Algorithmic Selection in Switzerland.

IV) Coping Practices Related to Algorithmic Selection in Switzerland.

Executive Summary – Report 4

Seven out of ten internet users frequently or always ignore personalized online recommendations

- The majority of internet users (70%) at least frequently ignore automated, personalized online recommendations when using algorithmic-selection applications.
- Six out of ten internet users (60%) say they frequently or always only use websites they know and trust.
- Half of internet users (50%) at least frequently consciously avoid using certain services when using the internet.
- Only 13% at least frequently try to use the internet less, although the majority (94%) at least sometimes think about using it too extensively.
- Engaging in these cognitive risk-related practices is more common among older and higher-educated internet users in Switzerland.

Half of internet users delete cookies at least frequently

- Half of internet users (50%) frequently or always deny certain rights to apps on their mobile devices.
- Almost half of internet users (47%) say that they delete cookies or their browser history, while a third (32%) say that they change their privacy settings on certain services.
- Younger and higher-educated internet users engage in these digital risk-related practices more often.

Substantial share of Swiss internet users experience chilling effects

- Swiss internet users adapt their online behavior to perceived online surveillance. 46% of internet users do not always voice their opinion online, because such data traces could harm them.
- Four out of ten (41%) believe that they are constantly surveilled online and are therefore cautious in their online behavior. Meanwhile, a third of internet users (36%) agree that they try to avoid attracting attention on the internet because the surveillance possibilities are vast.
- These chilling effects on legitimate behavior due to perceived online surveillance are more pronounced among older and higher-educated internet users in Switzerland.

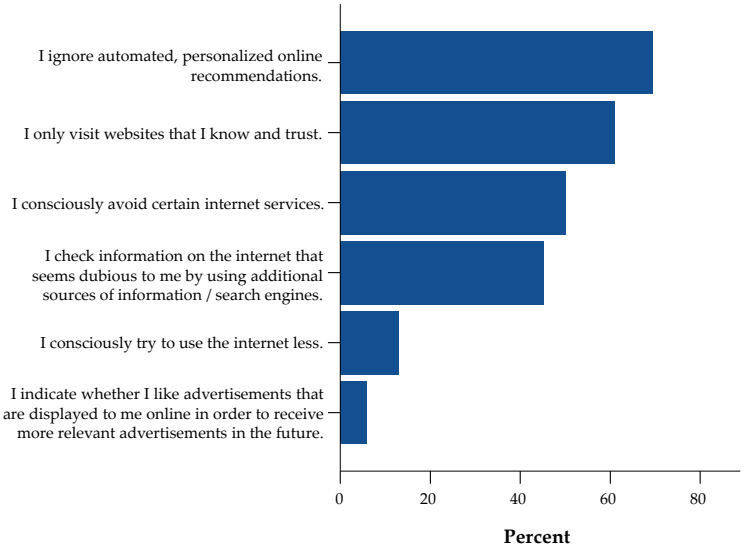
Eight out of ten reflect on whether to post content on social media

- The majority of social media users (80%) reflect on whether they really want to upload content before doing so.
- On Google Search, half of users (55%) say that they do not click on search results that are marked as advertisements.
- Younger and higher-educated users slightly more frequently engage in risk-related practices on social media and Google Search.
- Risk-related practices on YouTube are less widespread: a third do not like or comment on videos so that others do not see what they like.

1 Cognitive Risk-Related Practices

This report discusses practices that internet users employ against perceived risks that are associated with algorithmic selection. We distinguish between three types of practices: cognitive risk-related practices where users cope with and protect themselves from risks through cognitive decisions (e.g., only visiting websites they know and trust); digital risk-related practices where users apply general digital measures (e.g., deleting cookies); and applications-specific risk-related practices (e.g., on social media). Inter alia, the respondents were asked to indicate how often they engage in cognitive practices such as ignoring online recommendations, avoiding different websites or trying to use the internet less frequently. Figure 4 shows the percentage of Swiss internet users who reported engaging in such practices frequently or always:

Figure 4: Cognitive risk-related practices in Switzerland



Data basis: n=1202, Swiss internet users aged 16 and over, 2019.

Seven out of ten users frequently or always ignore automated, personalized online recommendations

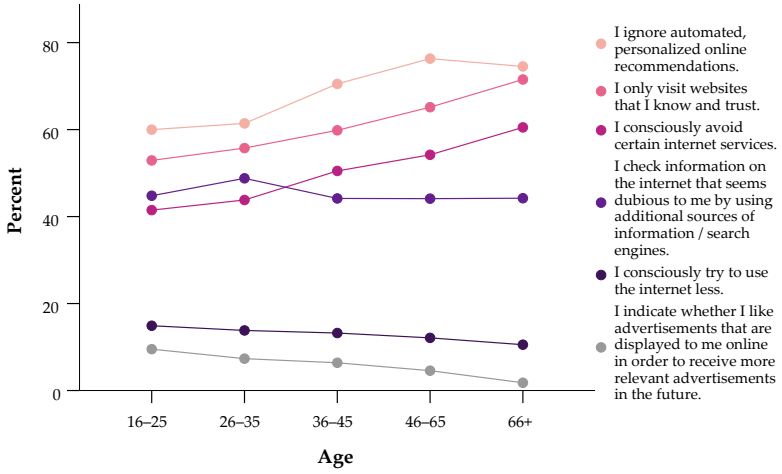
- Seven out of ten Swiss internet users (70%) often or always ignore automated, personalized online recommendations. This finding is in line with the comparatively low relevance that Swiss internet users assign to personalized advertisements for their purchasing decisions (see Report 1).
- Six out of ten (61%) users state that they often or always only visit websites that they know and trust.
- Half (50%) of Swiss internet users frequently or always consciously avoid certain internet services.
- More than four out of ten users (45%) frequently or always check information on the internet that seems dubious to them by using additional information sources or search engines.

One out of ten at least frequently consciously tries to use the internet less

- Only 13% of Swiss internet users frequently or always make a conscious effort to use the internet less. A third (33%) of internet users rarely try to use the internet less and 19% never do so. At the same time, a third of internet users (33%) indicate that they frequently think about the risk of overuse (see Report 3).
- 6% of internet users state that they frequently or always give feedback on advertisements by indicating to services, which advertisements they liked in order to receive more relevant ones in the future. The majority (57%) of internet users never do this.

The frequency of employing these cognitive risk-related practices differs with age. Figure 5 shows the percentage of Swiss internet users who engage in these practices frequently or always:

Figure 5: Cognitive risk-related practices by age



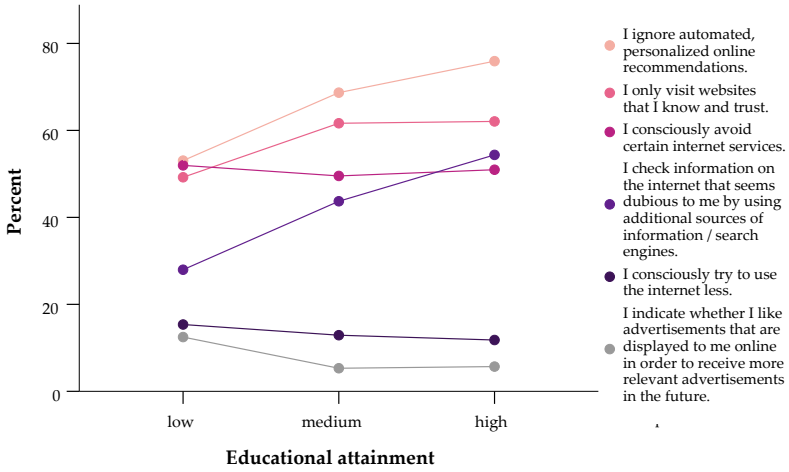
Data basis: n=1202, Swiss internet users aged 16 and over, 2019.

Older internet users generally engage in cognitive risk-related practices more frequently

- The percentage of internet users who frequently or always engage in these practices mostly increases with age. For instance, while 53% of the youngest group often or always only visit websites they know and trust, 72% of the oldest group aged 66 and over report engaging in this practice.
- The same trend can be observed for the practice of ignoring automated, personalized online recommendations: while 60% of users between 16 and 25 report at least frequently ignoring such recommendations, this share amounts to three quarters in the oldest age group of 66 and over (75%).
- However, while 10% of the youngest group aged between 16 and 25 frequently or always indicate whether they like advertisements that are displayed to them in order to receive more relevant ones in the future, only 2% of the oldest internet users aged 66 and over do so.
- Trying to use the internet less is also a cognitive practice that is slightly more prevalent in younger age groups. While 15% of users between the ages of 16 and 25 consciously try to use the internet less at least frequently, only 10% of the oldest group (66+) engage in this practice.

There are also differences regarding educational attainment:

Figure 6: Cognitive risk-related practices by educational attainment



Data basis: n=1202, Swiss internet users aged 16 and over, 2019.

Highly-educated internet users engage in cognitive risk-related practices more frequently

– Users with high levels of educational attainment engage in most cognitive risk-related practices more frequently than users with low levels of educational attainment. For example, while three out of ten internet users with low educational attainment (28%) frequently or always use additional information sources to check content that seems dubious to them, this share is almost twice as big among internet users with high levels of educational attainment (54%). Only 4% of highly-educated users never engage in this practice.
– However, there are some exceptions to this trend. For instance, users with a low level of educational attainment (15%) consciously try to use the internet less equally as frequently as highly-educated users (12%). Users with low levels of educational attainment (13%) indicate more often whether they like advertisements in order to receive more relevant advertisements in the future than higher-educated users do (6%).

Differences between levels of educational attainment and age groups often coincide. This is the case for two practices (consciously using the internet less and indicating whether one likes advertisements) in Figures 5 and 6. This may be due to the fact that many young users have not yet completed their education and are therefore part of the group with lower levels of educational attainment.

No differences in frequency of engaging in cognitive risk-related practices between male and female internet users

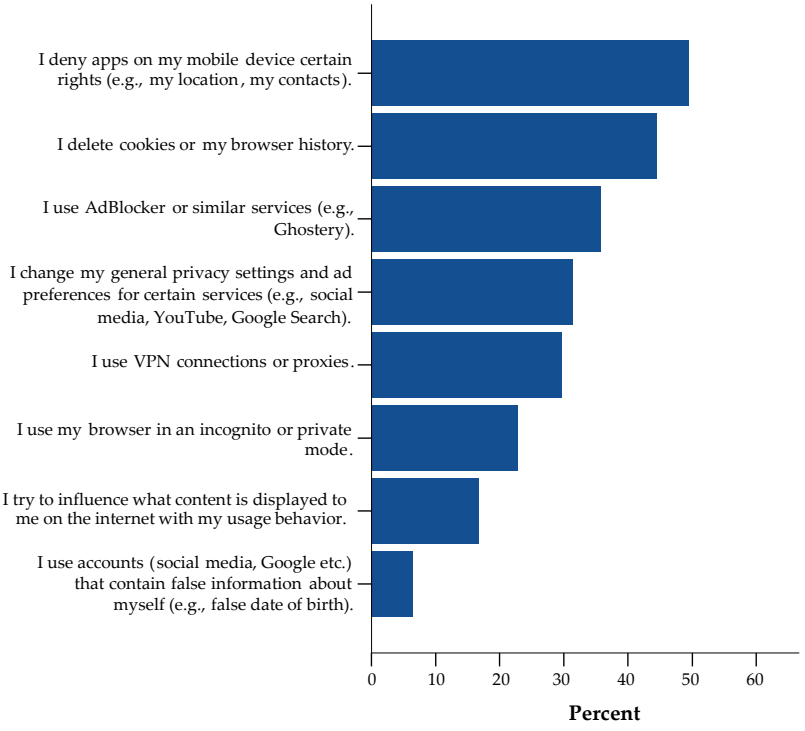
There are no major differences between men and women regarding the employment of cognitive risk-related practices:

– For instance, both men (68%) and women (71%) ignore personalized recommendations to the same extent.
– However, slightly more male (60%) than female users (50%) check content that seems dubious to them by using additional sources and search engines.

2 Digital Risk-Related Practices

The respondents were also asked to indicate how often they apply digital practices related to risks associated with algorithmic selection. These included deleting cookies, using virtual private networks (VPN) or changing one's privacy settings online. Figure 7 shows the percentage of internet users who engage in these practices frequently or always:

Figure 7: Digital risk-related practices in Switzerland



Data basis: n=1202, Swiss internet users aged 16 and over, 2019.

Half of Swiss internet users frequently or always deny certain rights to mobile apps

- Half of Swiss internet users (50%) frequently or always deny certain rights such as tracking their location or importing contacts to apps on their mobile devices. Three out of ten users (31%) engage in this practice sometimes. Only 6% never do.
- Half of internet users (47%) also frequently or always delete their cookies or browser history. Two out of ten users (21%) rarely delete them and only 7% reported never doing this.

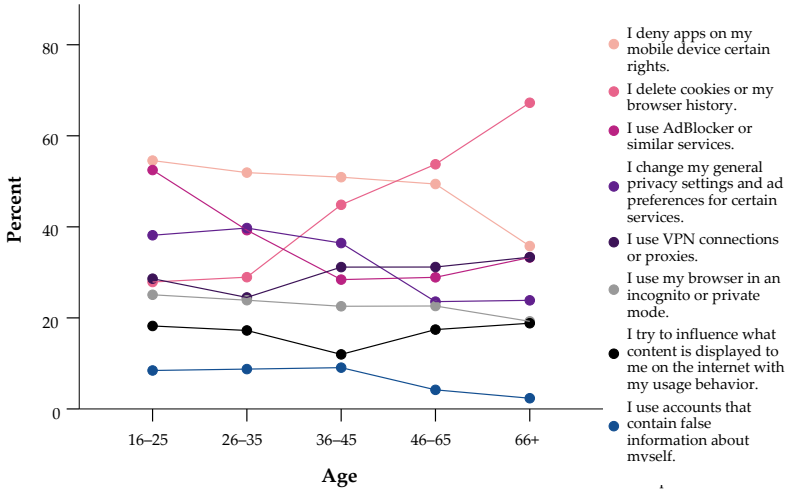
A third frequently or always use ad blockers or similar services

- Over a third (36%) frequently or always use AdBlocker or similar services such as Ghostery. At the same time, 37% of internet users never use such services.
- 32% frequently or always change their general privacy settings and ad preferences for Google Search or on social media.
- Three out of ten internet users (30%) frequently or always use virtual private networks (VPN) or proxies to hide their IP address. Two out of ten users (22%) never use VPNs or proxies, while 26% sometimes use them.

– Almost a quarter of internet users (23%) frequently or always use their browser in an incognito or private mode. Three out of ten users (30%) never do that.
– 17% frequently or always try to influence the content displayed to them online with their usage behavior. A third of users (33%) reported never trying to do this.
– Only 7% frequently or always use accounts with false information and 14% do so sometimes. The majority of Swiss internet users (57%) never use accounts with false personal information.

There are some differences with regard to age in the frequency of applying digital risk-related practices:

Figure 8: Digital risk-related practices by age



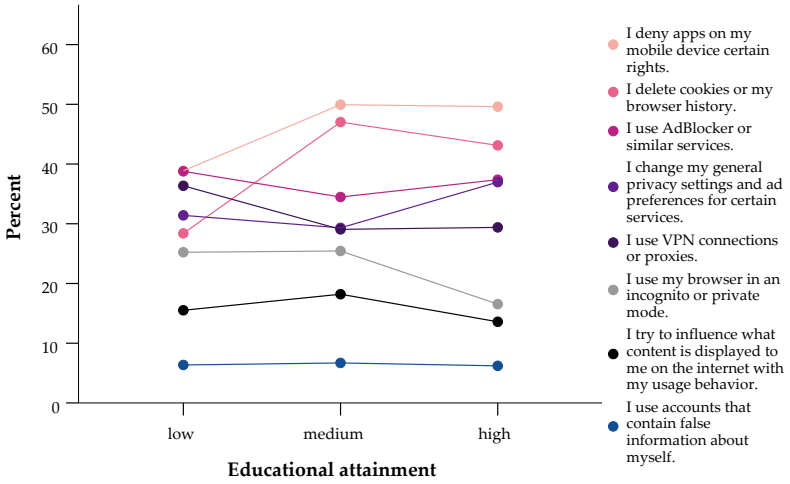
Data basis: n=1202, Swiss internet users aged 16 and over, 2019.

– Overall, young users engage in digital risk-related practices slightly more often. For instance, half of the youngest age group, 16 to 25, (52%) use ad blockers frequently or always, while only a third (33%) of internet users aged 66 and over do so.
– Also, 55% of the youngest group, 16 to 25, deny mobile apps access to certain rights, while only 36% of the internet users aged 66 and over do so.
– However, there are some exceptions to this trend. For example, three out of ten of users aged between 16 and 45 (28–29%) frequently or always delete their cookies or browser history, while two thirds of those aged 66 and over (67%) state the same. The use of VPNs and proxies also slightly increases with age. While 25% of the 26–35 age group frequently or always use such services, a third (33%) of the oldest group use them.

Deleting cookies or browser history is more common among older internet users

Internet users with different levels of educational attainment engage in digital risk-related practices to different extents:

Figure 9: Digital risk-related practices by educational attainment



Data basis: n=1202, Swiss internet users aged 16 and over, 2019.

Highly educated users more often engage in digital risk-related practices

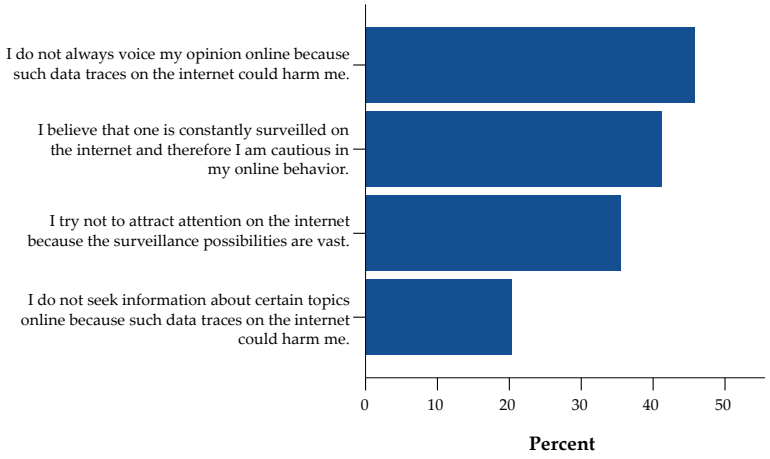
– In most instances, internet users with medium or high educational attainment tend to engage in digital risk-related practices more frequently. For example, 28% of those with low educational attainment frequently or always delete their cookies. At the same time, 47% of those with medium educational attainment and 43% of those with high educational attainment do this.
– However, more internet users with low educational attainment (36%) than with high educational attainment (29%) use VPN connections frequently or always. Users with low levels of educational attainment (25%) also use their browser in incognito or private mode more often than highly-educated users (17%).

More men than women engage in digital risk-related practices

– Also, more men than women engage in digital practices to deal with risks: for instance, more men (41%) than women (29%) use ad blockers frequently or always. Another difference concerns the use of a browser in incognito or private mode. While four out of ten women (40%) state that they never use such settings, only 21% of men never do.

This report also investigated whether users apply digital practices because they believe they are being monitored or surveilled on the internet. The survey asked respondents to indicate how often they change their online behavior or refrain from expressing their opinion as a result of perceived online surveillance. This self-restraint regarding legitimate or even socially desirable behavior is also known as *chilling effects*. Figure 10 shows the percentage of internet users who frequently or always engage in such digital practices related to perceived online surveillance:

Figure 10: Digital practices related to perceived online surveillance in Switzerland



Data basis: n=1202, Swiss internet users aged 16 and over, 2019.

– Almost half of Swiss internet users (46%) state that they do not always express their opinion online, because such data traces could harm them.

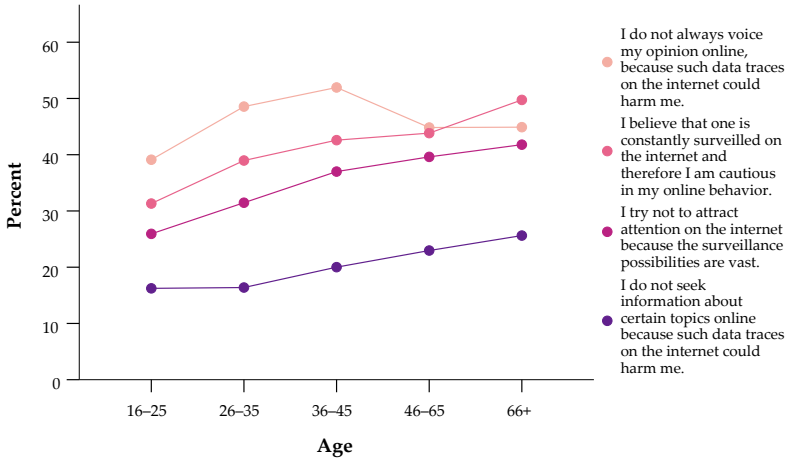
Almost half of internet users do not always voice their opinion online, because they believe that doing so might harm them

– Four out of ten (41%) are frequently or always cautious in their online behavior as they believe that one is constantly surveilled on the internet.
– A third of internet users (36%) try not to attract attention on the internet, because the surveillance possibilities are vast.
– In addition, a fifth (20%) of internet users do not seek information about certain topics, because such data traces might harm them. At the same time, 27% state they have never abstained from seeking information due to perceived online surveillance, while 27% do so rarely.

One out of five do not seek information about certain topics online, due to potentially harmful data traces

The frequency of applying such digital practices related to perceived online surveillance varies with age:

Figure 11: Digital practices related to perceived online surveillance by age



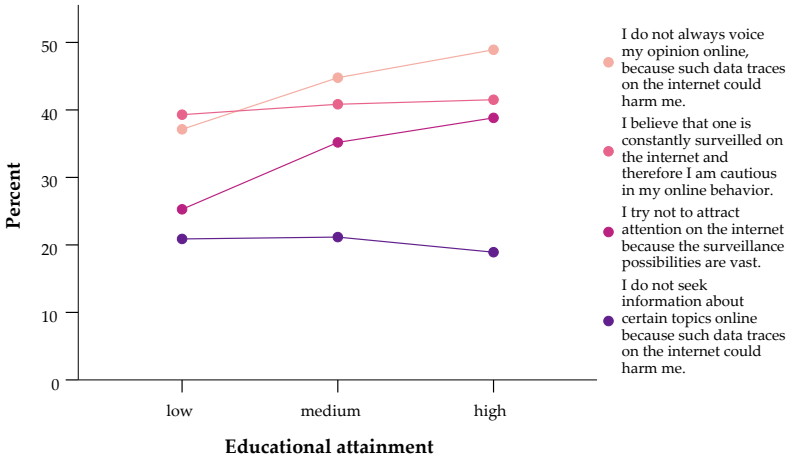
Data basis: n=1202, Swiss internet users aged 16 and over, 2019.

Young internet users adapt their online behavior less to perceived online surveillance

– Overall, older users more often engage in digital practices related to perceived online surveillance. For example, a third (31%) of the youngest group, 16 to 25, state that they are cautious in their online behavior due to constant surveillance online. Of those aged 66 and over, this share amounts to 50%.
– Internet users between the ages of 36 and 45 (52%) also refrain from voicing their opinion more often than the youngest group, aged 16 to 25 (39%).

There are also differences with regard to educational attainment:

Figure 12: Digital practices related to perceived online surveillance by educational attainment



Data basis: n=1202, Swiss internet users aged 16 and over, 2019.

Low-educated internet users adapt their online behavior less to perceived online surveillance

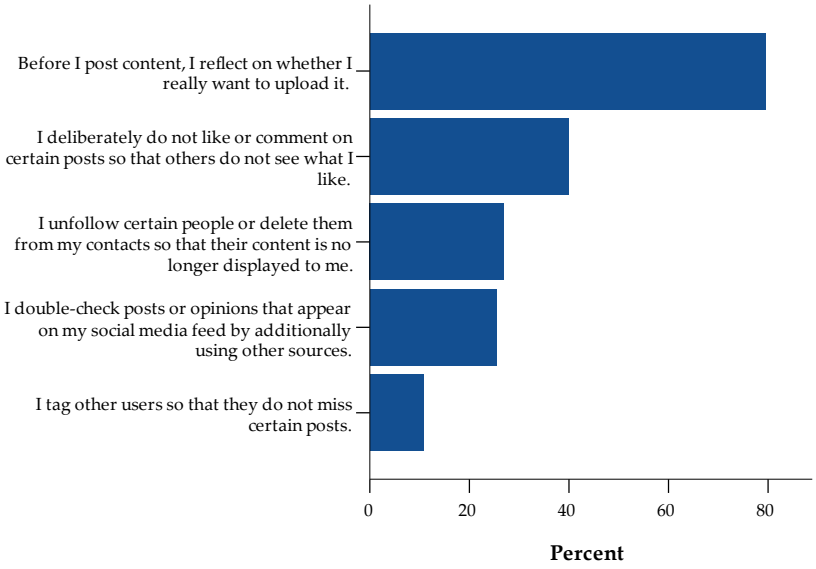
– Highly-educated users more often alter their behavior due to the risk of being surveilled online. For example, half of the highly-educated users (49%) frequently or always refrain from voicing their opinion online, while 37% of those with low educational attainment do so.
– Moreover, slightly more men (44%) than women (38%) state that they are cautious in their online behavior due to the risk of being surveilled.

These results indicate that internet users alter and adapt their behavior due to perceived online surveillance in one way or another. Substantial shares of the Swiss internet-user population appear to experience some sort of chilling effects during their everyday internet use.

3 Application-Specific Risk-Related Practices

The survey also asked respondents how often they employ different practices related to risks associated with specific applications like social media, Google Search and YouTube. The questionnaire included practices on social media such as checking posts that appear in one's newsfeed by using additional sources or unfollowing or blocking people. Figure 13 shows the percentage of internet users who engage in such practices on social media frequently or always:

Figure 13: Risk-related practices on social media in Switzerland



Data basis: n=925, Swiss social media users aged 16 and over, 2019.

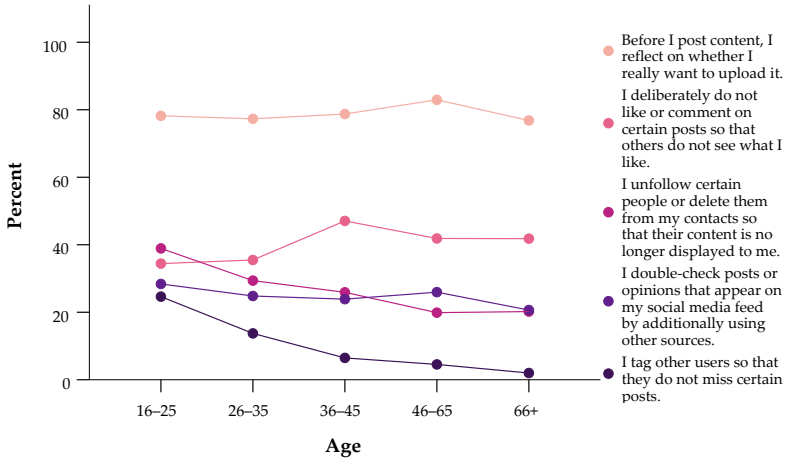
Eight out of ten social media users frequently or always reflect on whether to post content on social media before doing so

A quarter of social media users double-check posts that appear on their feed by using other sources

- Eight out of ten (80%) social media users frequently or always reflect on whether they really want to upload content before doing so. Only 2% of social media users never do this.
- Half as many (40%) deliberately do not like or comment on certain posts so that others do not see what they like.
- A quarter (27%) unfollow or delete certain people so that their content is no longer displayed to them.
- A quarter (25%) of social media users also frequently or always double-check posts or opinions that appear on their newsfeed by consulting other sources.
- Only 11% frequently or always tag other users so that they do not miss certain posts. A third (33%) of social media users never do this.

There are some differences between age groups regarding the frequency of applying risk-related practices on social media:

Figure 14: Risk-related practices on social media by age



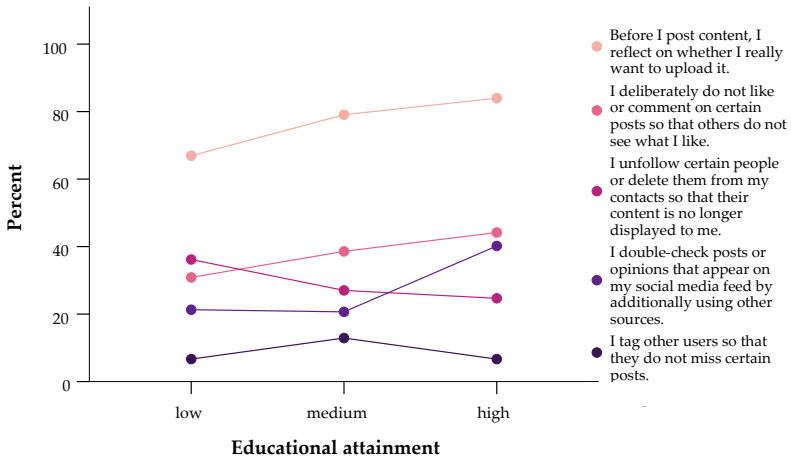
Data basis: n=925, Swiss social media users aged 16 and over, 2019.

Young users engage in risk-related practices on social media slightly more frequently

– Young internet users tend to engage in risk-related practices on social media slightly more frequently. For instance, while 39% of social media users in the youngest age group frequently or always delete and unfollow people, only 20% of those aged 66 and over do so.
– Similarly, while a quarter of young internet users (25% in the age group 16–25) frequently or always tag people to make them aware of certain posts, only 2% of users aged 66 and over do this. At the same time, only 22% of the youngest group never engage in this practice, while 57% of the oldest group state the same.
– At the same time, older social media users are slightly more conscious of what they like or comment on when using social media. Four out of ten of users aged between 45 and 66 (41%) refrain from liking or commenting on posts, while 35% of the youngest group, 16 to 25, do so. Those aged between 36 and 45 (47%) engage in this practice most frequently.

There are also differences between levels of educational attainment:

Figure 15: Risk-related practices on social media by educational attainment



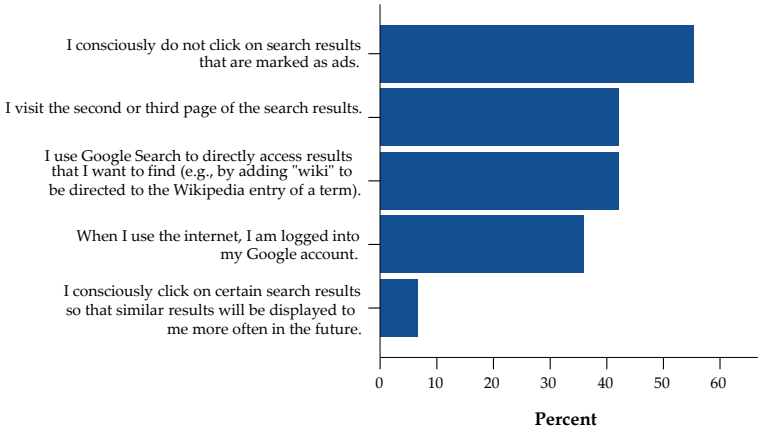
Data basis: n=925, Swiss social media users aged 16 and over, 2019.

Engaging in risk-related social media practices is more common among highly-educated users

- Highly-educated users employ risk-related practices on social media more often. For instance, while 66% of users with low educational attainment frequently or always reflect about whether to post certain content, 84% of those with high educational attainment do the same.
- However, those with low educational attainment (36%) unfollow or unfriend people more often than users with medium (27%) or high educational attainment (25%).
- There are no differences between men and women regarding risk-related practices on social media. For example, the same share of men (79%) and women (80%) at least frequently think about whether to post certain content.

The survey also included questions on risk-related practices on Google Search such as clicking on search results marked as ads or visiting the second or third page of the search results. Figure 16 shows the percentage of Google Search users who frequently or always engage in these practices:

Figure 16: Risk-related practices on Google Search in Switzerland



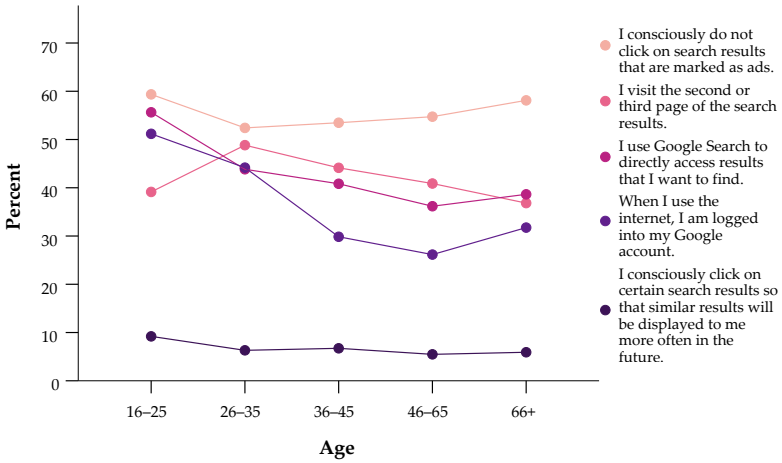
Data basis: n=1148, Swiss Google Search users aged 16 and over, 2019.

The majority of Swiss Google Search users at least frequently refrain from clicking on search results marked as ads

- The majority of Swiss Google Search users (55%) frequently or always consciously refrain from clicking on search results if they are marked as ads.
- Four out of ten Google Search users (42%) say they frequently or always visit the second or third page of the Google Search results.
- 42% of Google Search users also use the search engine to directly access results, for instance, by typing "wiki" after their actual search term to be directed to the corresponding Wikipedia entry.
- A third of users who have a Google account (36%) are frequently or always logged into it when using the internet.
- Only 7% of Google Search users deliberately click on certain search results in order to receive similar content more often in the future. Half of users (46%) never engage in this practice and 30% do so rarely.

The frequency of applying risk-related practices on Google Search differs with age:

Figure 17: Risk-related practices on Google Search by age



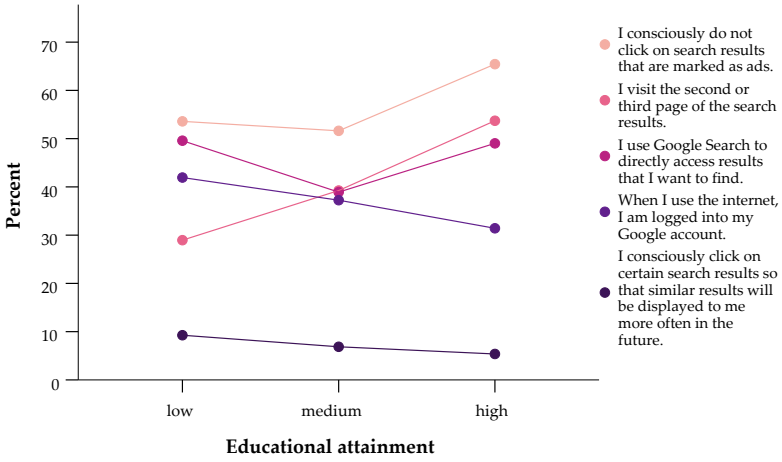
Data basis: n=1148, Swiss Google Search users aged 16 and over, 2019.

Older users employ less risk-related practices on Google Search

– Applying risk-related practices is more common among young Google Search users. While slightly more than half (55%) of the youngest group, 16 to 25, frequently or always use Google Search terms to access specific sites such as Wikipedia, only 39% of the oldest group, 66 and over, do so.
– Young Google Search users aged between 16 and 25 (51%) are logged into their Google account when using the internet more often than members of the oldest age group (32%).
– Across all age groups, users consciously abstain from clicking on search results that are marked as ads to a similar extent (e.g., 59% in 16–25 vs. 58% in 66+).

The frequency of applying risk-related practices on Google Search also differs among Swiss internet users with different levels of educational attainment:

Figure 18: Risk-related practices on Google Search by educational attainment



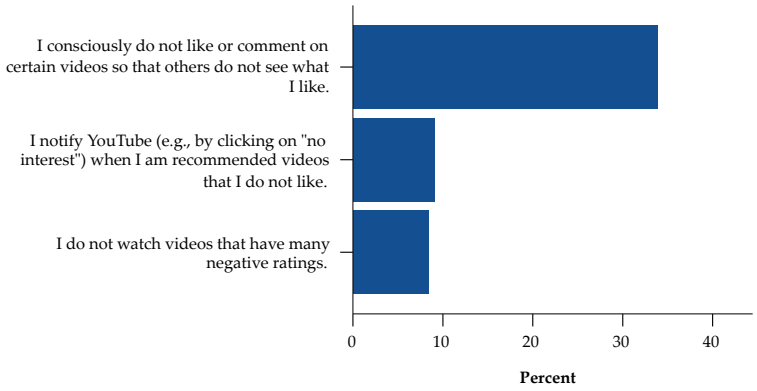
Data basis: n=1148, Swiss Google Search users aged 16 and over, 2019.

Low-educated Google Search users apply risk-related practices less frequently

- More highly-educated users (54%) than users with low educational attainment (29%) frequently or always visit the second or third page of Google Search results.
- Also, more highly-educated users (65%) than those with low educational attainment (51%) at least frequently deliberately do not click on content marked as ads.
- Differences between women and men regarding the frequency of applying risk-related practices on Google Search are generally small. Slightly more men (46%) than women (39%) frequently or always add search terms to their Google Search to access specific results such as Wikipedia entries.

Besides practices that concern Google Search and social media, the survey also included questions on risk-related practices on YouTube. Figure 19 shows the percentage of YouTube users who frequently or always engage in these different practices:

Figure 19: Risk-related practices on YouTube in Switzerland



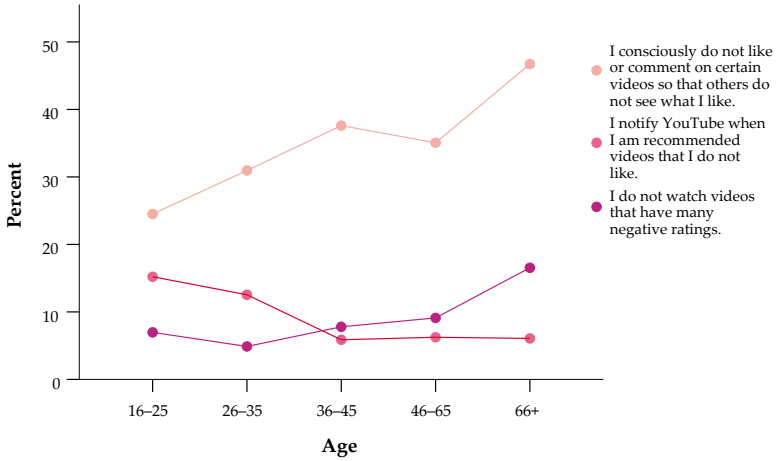
Data basis: n=1042, Swiss YouTube users aged 16 and over, 2019.

Users engage less in risk-related practices on YouTube than on Google Search or on social media

- Overall, fewer users engage in risk-related practices on YouTube than on social media or Google Search.
- A third of YouTube users (34%) frequently or always refrain from liking or commenting on videos so that others do not see what they like.
- Only one out of ten (9%) notifies YouTube when they receive recommendations that they do not like. Six out of ten users (58%) never engage in this practice.
- 8% frequently or always abstain from watching videos that have a lot of negative ratings.

The frequency of applying risk-related practices on YouTube differs across age groups:

Figure 20: Risk-related practices on YouTube by age



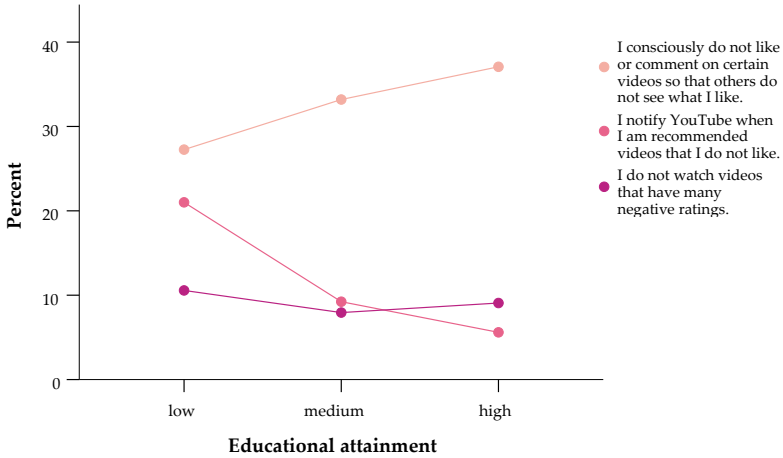
Data basis: n=1042, Swiss YouTube users aged 16 and over, 2019.

Older YouTube users are more conscious of which videos they watch, like or comment on

– Overall, older users engage more in risk-related practices on YouTube than young users. For example, older YouTube users are more conscious of what they comment on or like. While only 30% of those between the ages of 26 and 35 consciously do not like or comment on certain videos, 48% of those aged 66 and over state the same.
– Users aged 66 and over (22%) also abstain from watching videos with negative ratings more than the younger age groups, e.g., users between 26 and 35 (9%).
– However, young users notify YouTube more frequently when they receive inappropriate recommendations than older users do. While 15% of users in the youngest age group (16–25) engage in this practice, less than half as many (6%) of those aged between 36 and 65 do.

There are also some differences regarding the frequency of engaging in risk-related practices on YouTube by educational attainment:

Figure 21: Risk-related practices on YouTube by educational attainment



Data basis: n=1042, Swiss YouTube users aged 16 and over, 2019.

Highly-educated users refrain from liking or commenting on certain videos on YouTube more often

- Highly-educated YouTube users (37%) refrain from liking or commenting on certain videos more often than low-educated ones (27%).
- However, low-educated users (21%) are more likely to let YouTube know when they receive inappropriate recommendations than those with a high level of educational attainment (6%).
- There are no notable differences regarding gender.

Generally, differences in practices across sociodemographic groups regarding YouTube are not as pronounced as those regarding Google Search and social media.

Users with higher awareness of algorithmic selection and of related risks engage in practices more often

Engaging in all types of practices is more likely among internet users with higher awareness of algorithmic selection and higher awareness of related risks.

Methods

Representative survey of Swiss internet users

This study is based on a representative online survey of Swiss internet users. The sample of 1202 people is representative of Swiss internet users aged 16 and over by age, gender, language region, household size, and employment status. The data was collected by an independent market-research company, the LINK Institute, between 27 November 2018 and 23 January 2019 in three languages (German, French and Italian).

Online survey with panel sample

The participants were recruited from an existing internet panel (LINK internet panel) and received a small pecuniary incentive for their participation.

The sample was composed slightly disproportionately in order to enable separate analyses for smaller population groups. To balance this disproportion compared to the general population, the data was weighted with regard to age, gender, language region, household size, and employment status.

The survey lasted 30 minutes on average. The response rate was 76%.

Online surveys in absolute numbers:

Age	Total	German-speaking	French-speaking	Italian-speaking
16–25	211	146	58	7
26–35	225	169	49	7
36–45	210	142	57	11
46–65	422	308	97	17
66–85	134	100	28	6
	1202	865	289	48

Further Literature

Araujo, T., de Vreese, C., Helberger, N., Kruikemeier, S., van Weert, J., Bol, N., … Taylor, L. (2018). Automated Decision-Making Fairness in an AI-driven World: Public Perceptions, Hopes and Concerns. Digital Communication Methods Lab. https://pure.uva.nl/ws/files/29049625/20180925_ADMbyAI.pdf

Fischer, S. & Petersen, T. (2018). Was Deutschland über Algorithmen weiss und denkt. Ergebnisse einer repräsentativen Bevölkerungsumfrage. Bertelsmann Stiftung. https://doi.org/10.11586/2018022

Grzymek, V. & Puntschuh, M. (2019). Was Europa über Algorithmen weiss und denkt. Ergebnisse einer repräsentativen Bevölkerungsumfrage. Bertelsmann Stiftung. https://doi.org/10.11586/2019006

Just, N. & Latzer, M. (2017). Governance by algorithms: reality construction by algorithmic selection on the Internet. *Media, Culture & Society, 39 (2),* 238-258. https://doi.org/10.1177%2F0163443716643157

Latzer, M., Büchi, M., & Festic, N. (2019). Internetverbreitung und digitale Bruchlinien in der Schweiz 2019. Themenbericht aus dem World Internet Project – Switzerland 2019. Zürich: Universität Zürich. http://mediachange.ch/research/wip-ch-2019

Latzer, M. & Festic, N. (2019). A guideline for understanding and measuring algorithmic governance in everyday life. *Internet Policy Review, 8(2)*. https://doi.org/10.14763/2019.2.1415

Latzer, M., Festic, N., & Kappeler, K. (2020). Awareness of Algorithmic Selection and Attitudes in Switzerland. Report 2 from the Project: The Significance of Algorithmic Selection for Everyday Life: The Case of Switzerland. Zurich: University of Zurich. http://mediachange.ch/research/algosig

Latzer, M., Festic, N., & Kappeler, K. (2020). Awareness of Risks Related to Algorithmic Selection in Switzerland. Report 3 from the Project: The Significance of Algorithmic Selection for Everyday Life: The Case of Switzerland. Zurich: University of Zurich. http://mediachange.ch/research/algosig

Latzer, M., Festic, N., & Kappeler, K. (2020). Coping Practices Related to Algorithmic Selection in Switzerland. Report 4 from the Project: The Significance of Algorithmic Selection for Everyday Life: The Case of Switzerland. Zurich: University of Zurich. http://mediachange.ch/research/algosig

Latzer, M., Hollnbuchner, K., Just, N. & Saurwein, F. (2016). The economics of algorithmic selection on the Internet. In: Bauer, J. and Latzer, M. (Eds.), *Handbook on the Economics of the Internet*. Cheltenham, Northampton: Edward Elgar, 395-425.

Latzer, M. & Just, N. (2020). Governance by and of algorithms on the internet: impact and consequences. In: *Oxford Research Encyclopedia of Communication.* Oxford: Oxford University Press. https://doi.org/10.1093/acrefore/9780190228613.013.904

Mayer, R. & Davis, J. (1999). The effect of the performance appraisal system on trust for management: A field quasi-experiment. *Journal of Applied Psychology, 84* (1), 123–136.

Perrin, A. & Anderson, M. (2019). Share of U.S. adults using social media, including Facebook, is mostly unchanged since 2018. Pew Research Center. https://www.pewresearch.org/fact-tank/2019/04/10/share-of-u-s-adults-using-social-media-including-facebook-is-mostly-unchanged-since-2018/

Saurwein, F., Just, N. & Latzer, M. (2015). Governance of algorithms: options and limitations. *info, 17 (6)*, 35-49. https://ssrn.com/abstract=2710400

Schmidt, J.-H., Merten, L., Hasebrink, U., Petrich, I., & Rolfs, A. (2019). How do intermediaries shape news-related media repertoires and practices? Findings from a qualitative study. *International Journal of Communication, 13,* 853–873. https://ijoc.org/index.php/ijoc/article/view/9080

Urech, M. (2018). Wer sich bewegt zahlt weniger Prämien. Netzwoche. https://www.netzwoche.ch/storys/2018-09-18/wer-sich-bewegt-zahlt-weniger-praemien

University of Zurich[UZH]

MEDIACHANGE and innovation a division of ikmz